

how to make

Soap

without
burning
your
face
off

by raleigh briggs



PLEASE READ

The process detailed in this zine requires a lot of care and attention. Some of the substances used to make soap are potentially very dangerous. Neither I nor the good folks at Microcosm can be responsible for you if you hurt yourself, someone else, or otherwise get into trouble. Please read all the instructions before you begin. Don't cut corners, especially with safety precautions — even if you've made soap before. Above all, take care of yourselves, and your friends, and have fun!

written and illustrated by Raleigh Briggs



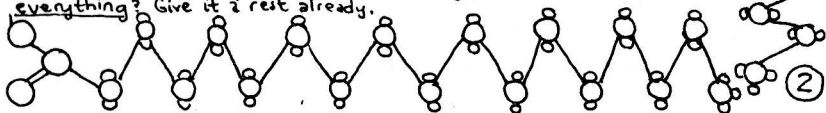
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First, a history lesson...

Soap in its most basic form is created by combining some form of fat with a strong alkaline substance, a process called saponification. There are many theories about how humans got a handle on saponification. A popular legend is that soap was discovered in ancient Rome, on a mountain called Sapo. Maybe you've heard this? According to the story, when the fat from sacrificed animals ran down the side of the mountain to a river below, it mixed with the ashes from the burnt offerings and a crude soap formed in the river water. Thus the good people of Sapo were able to do their laundry.

While this story is really fun and creepy, it's not true. Nobody can find anything resembling Mount Sapo, and no one in Rome wrote about the phenomenon, either. Sorry, kids! I know how much you liked that gross story.* In reality, soap (in its modern formulation) has been in use all over the world since the early centuries of the Common Era. For most of that time, soap was made on a very small scale, and mostly used for laundry and household cleaning, as it was usually too harsh for bathing. Increasing awareness of hygiene and its ability to curb the spread of disease led to the large-scale industrial manufacturing of soap in the late 18th century. By the time the Industrial Revolution rolled (and in some places is still rolling) around, it was pretty normal to buy things instead of making them, and hand-made soap became more of a rarity. It's funny, then, that today "artisanal" soaps are a sort of fancy treat for people. Full circle!

*As an aside, can we please stop pretending that Romans invented everything? Give it a rest already.



about lye...

A few years ago I wrote a zine about nontoxic housecleaning. I didn't include any soap recipes in the zine because lye is quite poisonous and demands serious respect. It's kind of opposite of nontoxic. We all saw that movie. But I'm ready to talk about lye now, so here we go:

Lye is the lay term for a caustic alkaline compound, sodium hydroxide (NaOH). It is usually, though not always, the primary chemical used in making soap (potassium hydroxide is used to make liquid soap). Lye can be pretty intimidating for beginners, but alas, you can't make soap bars without it. Fortunately, it only takes a few precautions to keep things from getting hairy.



*NONE OF THESE
ARE OPTIONAL*

RULES OF LYE

- Always buy 100% lye, and not drain cleaner, which usually consists of lye + a lot of other crap. You can find it at hardware stores - but bring your ID, some places restrict the sale of lye because it's used in meth production.

- When lye and water meet, they get very hot very quickly. You should know this, and you should know that the combination creates fumes you don't want to breathe. Always work in a very well-ventilated area. It's best if you can mix your lye and water outdoors; second best is to open a couple windows and point a fan out of one of them.

- Keep kids and animals out of your soapmaking area, including your lye-mixing area.

- Protect yourself by wearing safety goggles and thick rubber gloves. Long sleeves and close-toed shoes are also a good idea.

- Lastly, if lye gets on your skin, you can neutralize it

③ by dousing your skin with vinegar. Keep a big bottle of vinegar around for this purpose.

Fats!

Although it's possible to create soap using a single fat, most handmade soaps use a combination of oils. Each fat you'll encounter has a different assortment of fatty acids. Different fatty acids contribute to a soap's hardness, durability, lather, and moisturizing ability. The recipes in this zine will only use vegetable fats, but most commercial soaps are made with tallow. Tallow is rendered cow's fat. It's dirt cheap and creates a nice bar of soap, but there are so many other options to explore. The best soap has a good balance of hardening, lathering, and cleansing oils (see the handy chart to see which oils do what).

Hardening	Lathering	Moisturizing
palm * shea butter jojoba beeswax cocoa butter (lard + tallow)	Coconut castor palm kernel* cottonseed (aka vegetable shortening - use organic, cotton plants are heavily sprayed)	olive canola soybean sunflower rice bran safflower
		SUPERFATS!
		apricot kernel sweet almond avocado kukui nut wheatgerm

SUPERFATTING happens

when there is a little more oil than lye in your soap. The extra oil ends up on your skin instead of getting saponified. Superfatting does two things:

- ① It makes your soap more lovely and moisturizing
- ② It ensures that your soap is mild enough. If there's too much lye in your soap it can be caustic; adding more oil gives you some wiggle room. In some books it might be referred to as "lye discounting."

You can use whatever oil you want for superfatting, including the ones you're already using in the recipe. But since you only need a little bit, why not try something nice?

The Process!

FIRST YOU NEED:

- a stockpot with handles (steel, enamel, or pyrex)
- a pyrex or heat-resistant plastic pitcher
- a glass mason jar
- a big mixing bowl
- two easy-to-read metal thermometers
- a scale
- two spoons (one plastic, one wooden)
- rubber gloves and goggles
- molds for the soap (see step 6)
- a towel or blanket
- emergency vinegar



all your oils, lye,
additives, etc.
See Recipes section!

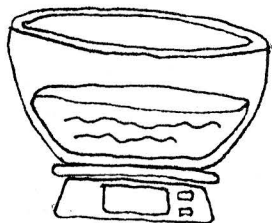
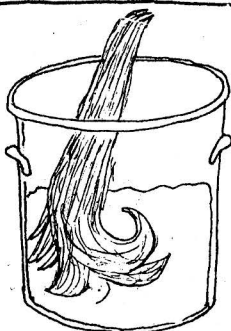
1 Like most things, soapmaking goes smoothest if you have your shit together: measure all your ingredients beforehand and have your materials handy. Line your work area with newspapers and put on your gloves and goggles.



2 Take your pitcher, mason jar, lye and water to a well-ventilated area, outside if possible. Measure water into the pitcher and lye into the jar. Use a scale and measure by weight. Place both on a steady surface and attach a thermometer to the pitcher.

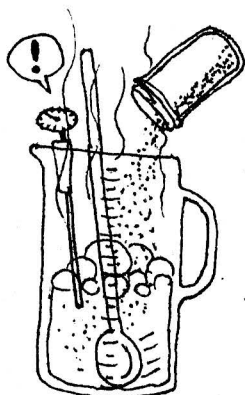
6 Annnnd keep stirring! FOREVER. Here's the thing about soap: you have to stir it for a really long time, anywhere from 45 minutes to 3 hours. It's totally bearable if you have a few friends to help you. Another option, if you have a little money, is to buy a stick blender - more on that coming pages. In either case what you're looking for is soap thick enough to leave a trace behind when you run your spoon through it. This is appropriately called the trace stage.

5 When lye has reached the same temperature as oil, add the lye mixture to the pot in a slow stream whilst stirring diligently. Have someone else put the lye pitcher in a safe place + keep stirring...



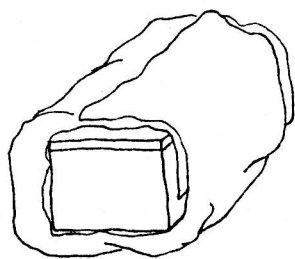
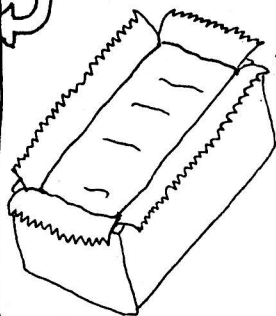
4 Weigh your fats in the plastic bowl, add them to the pot, and heat them to 110° . Watch the temperature closely. If you're using solid fats, weigh them in the pot and melt them before adding the liquid fat.

3 Add the lye to the water a little at a time and stir it with the wooden spoon until it's dissolved. Watch out - the water will get very hot, at least 200° . ALWAYS add lye to water, not the other way around. If you pour water on a heap of lye it will cause a teensy explosion. Put the pitcher in a safe place and let it cool to 110 degrees.



7 When that sweet, sweet trace has been achieved, you can add your essential oils, scrubby bits, glitter, etc. Add fragrances first, exfoliants and textural bits second, and colorants last. Stir until everything is well blended but not too thick to pour.

8 Line your mold if it's not lined already. Use parchment paper and tape it down. A narrow wooden box is the best mold, especially if it has a lid. Another good option is a semi-flexible plastic container, which you can oil lightly instead of lining. Pour your soap into the mold and smooth the top with a spatula. Pick up the mold and drop it a couple of times to dislodge any air bubbles.



9 Time to put your soap to bed for a day or two. Put a lid on your mold, wrap the whole thing in a towel or blanket, and put it in a warm place. Leave it alone for 24 hours so it can cure. In the meantime leave your gloves on while

you wash your equipment with hot, soapy water.*

After your soap has rested you can unmold it and cut it into bars; use a knife or a length of wire. Lay the bars out on a rack and let them dry out for a few weeks. Drying the soap will make it gentler and longer-lasting. If you try to use it right after you make it your soap will just melt in the shower.

If you really can't resist, at least wait a few days.

7 *But not your wooden lye spoon. It's gone forever. Sorry!

Special Tricks

- Using colorants : there are a few different tricks for coloring soap. Wax crayons actually work pretty well, but only certain colors of crayon. Cerulean is the best one to use, but yellow, orange, black and white work well too. Add up to a teaspoon of a spice to make nice warm, autumnal colors : turmeric makes a deep gold; paprika makes peach; cocoa powder makes a warm brown. The easiest way to make green soap is to start your batch with herb-infused oils. Comfrey leaf in particular is deep green and has skin-healing properties.
- Using additives : adding scrubby stuff like oatmeal or cornmeal to your soap invigorates your skin and makes your recipes more unique. Start with a cup of your chosen additive and add more if you need it. Plant bits like lavender buds and calendula petals are nice too, although they won't retain their colors through the soaping process. Sea salt and green clay are good additives for oily skin.
- Using a stick blender will bring your soap to trace very quickly, but you have to use it carefully. When you're adding your lye to your oils, use the blender as a spoon instead of turning it on. As soon as all the lye has been added you can start turning the blender on for five seconds at a time, stirring in between pulses. Your batch will thicken in just a few minutes, but resist the temptation to keep the blender humming - you don't want your soap to get too thick before you add your additives and scents in. If it does, you'll be stuck with boring soap, and it will be your own fault.
- Sometimes you might unmold your soap to find that a white layer of "ash" has formed on top. This is not a big deal: just cut or scrape it off and proceed!

Recipes

START HERE →
OR HERE



Basic Soap Recipe #2

(Makes 5 lbs, or 48 bars)

This recipe improves on recipe #1 with the addition of castor oil (for creamy lather) and canola and sunflower oils (for moisture).

20 oz olive oil

20 oz coconut oil

20 oz shortening

8 oz canola oil

8 oz sunflower oil

4 oz castor oil

21.7 oz water

11.2 oz lye crystals

1/2 - 1 oz essential oil*

* If you're using fragrance oil instead of essential oil, you can use a little more in your recipe.

Basic Soap Recipe #1 (Makes 5 pounds, or 48 bars!)

This recipe contains coconut oil for lather, olive oil for its emollient properties, and vegetable shortening to harden the bar. I added some cocoa butter to superfat the soap.

24 oz coconut oil

28 oz olive oil

24 oz shortening

4 oz cocoa butter

30.4 oz water

11.4 oz lye crystals

1/2 - 1 oz essential oil*

Healing Soap for dry skin, eczema, upset skin

Use Recipe #2. A few days before you start, add 1 cup each comfrey leaf and calendula petals to the olive oil you're using. Strain all the solid bits out of the oil before you make soap. Use orange blossom or lavender oil (or both!) for fragrance.

Scrubby Soap for dirty hands

Use Recipe #1. After you hit the trace stage, add 1/2 cup each cornmeal and oatmeal to your soap. Use a citrus oil like lemon or bergamot for fragrance. If you want to, add a teaspoon or more of turmeric for color.

Oatmeal Soap for itchy skin

Use Recipe #2. Replace the water in the recipe with rose petal tea. Use chamomile and rose oils for fragrance (don't use chamomile if you are allergic to ragweed). Add

⑨ up to a cup of coarsely ground oatmeal.

Femme Soap

Use Recipe #1. Replace the water in the recipe with rose petal or jasmine flower tea, or use flower-infused oils. Add some glitter during the additive stage and color with 1 teaspoon of paprika for a nice peachy color. For scent, use rose,* jasmine, rose geranium, neroli, or ylang-ylang essential oil.

Good Morning Soap

Use either recipe. Use peppermint tea instead of water. After trace stage, add $\frac{1}{2}$ c each sea salt and sand or pumice powder. Make sure to use clean, fine sand. Add basil and peppermint oils for scent.

Sleepy Soap

Use either recipe. After trace stage, add up to a cup of lavender flowers. Use chamomile and rosemary oils for scent + soothing properties.

Swirly Soap

If monochromatic soap is too boring for you, add some visual interest with a nice swirly pattern. If you've ever tempered an egg-based sauce, it's basically the same process. If this interests you, read on:

When it comes time to add colorant, scoop out about a cup's worth of soap. Add your colorant to this little bit, mix it well, and then drizzle the colored soap back into the pot. Hold the cup a few inches from the bowl so you don't get too much in one place. Swirl the soap gently with a rubber spatula to achieve desired marbling.

* use rose perfume oil, rose essential oil is crazy expensive



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